

The Play-Doh Resistance Experiment

Hypothesis:

(I think that) If I change the _____ of my play-doh, by _____

I will cause the resistance in a simple circuit to _____. I think this because:

Variables:

I will measure _____ (dependent variable).

I will change _____ each time by _____.

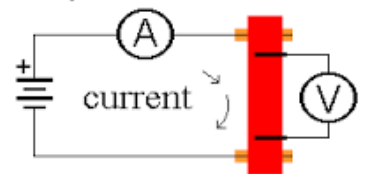
How can I measure or describe the change I make each time?

Things that I will keep the same (controlled variables – list at least three):

Materials: (a list of *everything* you need to test your hypothesis)

Procedure: (Tell us exactly what to do, one step at a time.)

Play-Doh Circuit



Data collection: What data will you collect, and how will you record it? (you might want to draw a table for writing in your data – like this one:)

Play-doh (what are you doing with it?)	Voltage: 3 V	Current:	Resistance (Calculated)

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Achievement level	Level descriptor	
0	The student does not reach a standard described by any of the descriptors below.	
1-2	The student is able to: <ul style="list-style-type: none"> • state a testable hypothesis • state the variables • design a method, with limited success 	<ul style="list-style-type: none"> • reasonable hypothesis included • states the variables • writes materials and procedure that is unclear or has information missing.
3-4	The student is able to: <ul style="list-style-type: none"> • outline a testable hypothesis using scientific reasoning • outline how to manipulate the variables, and state how relevant data will be collected • design a safe method in which he or she selects materials and equipment 	<ul style="list-style-type: none"> • hypothesis has some reasons included • includes information on what data will be recorded. • Includes adequate control variables • 3-5 data points will be collected. • Includes the necessary materials and a correct procedure, which may still have gaps or lack details needed to replicate the experiment.
5-6	The student is able to: <ul style="list-style-type: none"> • outline and explain a testable hypothesis using scientific reasoning • outline how to manipulate the variables, and outline how sufficient, relevant data will be collected • design a complete and safe method in which he or she selects appropriate materials and equipment 	<ul style="list-style-type: none"> • hypothesis is clear and testable, and includes scientific reasons for making the hypothesis. • Includes complete information on data collection and controlled variables. More than five data points will be collected. • Procedure and materials are clear and complete.
7-8	The student is able to: <ul style="list-style-type: none"> • outline and explain a testable hypothesis using correct scientific reasoning • describe how to manipulate the variables, and describe how sufficient, relevant data will be collected • design a logical, complete and safe method in which he or she selects appropriate materials and equipment 	<ul style="list-style-type: none"> • hypothesis is clear and testable, and includes correct scientific reasons for making the hypothesis, perhaps based on research. • Includes complete information on data collection and controlled variables. More than five data points will be collected. There is an explanation of how to control the variables, and of how results could be duplicated. • Procedure and materials are clear and complete, so that anyone could follow it, and may include suggestions for extending the experiment or for trouble shooting possible difficulties.

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